

BACKGROUND OF THE INVENTION

The present invention relates to transmission of electronic information, and particularly to a system and a method for transferring identification information of electronic mail.

2. Description of the Prior Art

Different from conventional mails penned in paper, electronic mails are for transferring and receiving messages by using some electronic devices. When users would like to send letters to others, they can key in letters by using any office editor, and transfer them through Internet. At the moment, receivers may be not in the state of on-line, that is, their computers can be not connected to Internet. In fact, all such electronic mails are stored in the mail servers in any Internet service provider (ISP). Users can receive their mails when they connects their computers with Internet next time and open their mail boxes in the mail server of Internet.

In accompanying with the population of mail service, human living is establishing closer relationship with electronic mails. In general, users need to first login Internet, and thereafter send and

Another object of the invention is to provide a system and method for transferring electronic mails. Users can immediately know the arrival of their new mails without turning on computers and connecting to Internet, and therefore save network resources and time cost.

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According to the above objects, the invention provides several embodiments of method and system for transferring electronic mails. In the present invention, as an electronic mail provider detects a new electronic mail, it then actively transmits a transmission signal to a receiving terminal assigned by user. Next, after the electronic mail provider receiving a response message from the receiving terminal, it transfers identification information of the electronic mail to the receiving terminal. Besides, the invention also provides a method and a system for displaying identification information of electronic mail on a mail server. In this method and system, the electronic mail provider transforms the identification information into a transmission signal, and then transfers the transmission signal to users. Users receive the transmission signal through a receiving terminal, and re-transform the transmission signal into the identification information of electronic mail, then display the identification information on the receiving terminal.

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BRIEF DESCRIPTION OF THE DRAWINGS

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The foregoing versions and many of the attendant advantages

of this invention will become more readily appreciated as the same become better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

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FIG. 1 shows a block diagram illustrating a conventional dialup connection method for checking new electronic mails;

10 FIG. 2 is a block diagram for a system in one embodiment of the present invention for displaying electronic mails identification information;

15 FIG. 3 is a sketch map for a system in the other embodiment of the present invention for displaying electronic mails identification information;

FIG. 4 shows a conventional FSK format used in the present invention;

20 FIG. 5 shows the H/W block diagram illustrating an electronic mail identification of receiving terminal in the present invention;

FIG. 6 is an flowchart of the present invnetion; and

25 FIG. 7 is a block diagram of the method in the present invention for transferring identification information of electronic mails.

DESCRIPTION OF THE PREFERRED EMBODIMENT

There are some embodiments of the present invention described in greater detail with reference from FIG. 2 to FIG. 7. Nevertheless, it should be realized that the present invention can be practiced in an wide range of other embodiments beside those explicitly described, and the scope of the present invention is expressly not limited except as specified in the accompanying claims. In the following detailed description, several specific details are set forth in order to provide a thorough understanding of the present invention. It will be obvious, however, to one skilled in the art that this invention may be practiced without those specific details.

First of all, it should be noted that some current telephone systems support the services so-called a caller identification ("ID"), or caller ID ("CID"). Such a CID service provides the CID users (i.e., the called party) the information of the caller and display the information on the device of the receiving terminal, such as a telephone set with a liquid crystal display. The caller information generally includes the caller's telephone number. Furthermore, there are some systems supporting the transfer function of words, so as to transfer the caller's name, transferring time, and date. Obviously, by utilizing the caller identification service, it is possible for users to get the information of new electronic mails without actively connecting to the network. The key is to use CID display interface to display the identification information of the electronic mail from the electronic mails provider.

FIG. 2 shows a block diagram of a system 200 in one

embodiment of the present invention for displaying electronic mail identification (EID) information. The system 200 comprises an electronic mail provider 210 for providing mail servers, a network service provider 220, such as a telephone company, and an receiving terminal 230 which preferably has a displaying panel 240. In the embodiment, the system 200 is an EID telephone system for transferring the EID information of mail sender from electronic mail provider 210 to the receiving terminal 230 through the network service provider 220. As above network service provider 220 as a telephone company, it may comprise a communication network 250 using a telephone line as a transmission medium. Nevertheless, in the embodiment, besides telephone line, the communication network 250 between electronic mail provider 210 and the receiving terminal 230 may be other wired communication network, such as TV cables, or wireless communication network, such as satellite communication network, mobile communication network systems, etc..

Furthermore, system mentioned above may be regard as a combination of the two systems. One is a system of an electronic mail provider actively transferring identification information of electronic mails, and the other is a system that assisting users in getting the message of a new electronic mail. The former comprises at least a modulating mean and a transfer means. The modulating mean is for transforming identification information of an electronic mail into a transmission signal, and the transfer means is for transferring the transmission signal to a receiving terminal of a user. The latter comprises at least a receiving mean, a demodulating means and a displaying means. The receiving means is for receiving the transmission signal that is transferred from the electronic mail provider.

The demodulating means is for transforming the transmission signal into identification information of the electronic mail, and the displaying means is for displaying the identification information.

5 It should be noted that the system having assisting function may further comprises a connecting device for establishing a connection between the receiving terminal and the electronic mail provider when the receiving terminal is notified to receive EID. Considering user's failure in reading the identification information in time, the operation for
10 transferring the identification information may comprise a suspending step and a re-establishing step. The suspending step is for stopping the connection from the receiving terminal and electronic mail provider 210 that isn't yet established within a set period, while the re-establishing step is for re-establishing the connection with electronic mail provider
15 210 and transferring the transmission signal after waiting a standby period. In the embodiment, the set period and standby period can be adjustable. Of course, the operation for the system also further comprises automatically transferring the identification information to the receiving terminal as soon as receiving a response message from the
20 receiving terminal.

Besides those mentioned above, the system of transferring identification information further comprises a filtering device. The filtering device would stop transforming the identification information
25 into the transmission signal if the electronic mail corresponds with some predetermined delete conditions, or transforms the identification information into the transmission signal if the electronic mail corresponds with some predetermined permission conditions.

Obviously, the filtering device is utilized by electronic mail provider for meeting users' various requirements for transferring identification information.

5 The filter device also can be built on the receiving terminal. Thus, the filter device is for suspending the transformation of the transmission signal when the identification information is corresponding with some predetermined deletion conditions. Moreover, the filter device also can be for permitting the transformation when the
10 identification information is corresponding with some predetermined permission conditions. Besides, both deletion and permission conditions can be set according to the identification information because of the related-mail messages therein, such as the highlight of electronic mail, receiving date and receiving time, sender's electronic mail address,
15 sender's name, distinctive code (such as telephone number of electronic mail provider), etc.. Furthermore, the identification information also can be adjustable. For providing users the more flexibility in receiving the identification information of the electronic mail, the system having assistant function further comprises a switch device for controlling the
20 suspending/permitting operations of the receiving terminal.

 The present invention also provides a method for displaying an identification information of an electronic mail that is saved in an electronic mail client's account, and users can view the latest new mails
25 without making any dial-up connection through the Internet to an Internet service provider (ISP). The method comprises the following steps:

First , the electronic mail provider 210 receives an electronic mail.

Second, the identification information data stream of the electronic mail is transformed into a transmission signal in a format, such as FSK (Frequency Shift Keying) or DTMF (Dual Tone Multi-frequency) format, UART (Universal Asynchronous Receiver And Transmitter) or any other transmittable one. Thus, the identification information of the electronic mail may comprise something such as a receiving date and time, a sender's email address, a sender's name, a message title of the electronic mail, and a distinctive code of the ISP's phone number, etc.. It should be understood that any one mentioned above is not definitely necessary for the identification information data stream, and others not mentioned above may also be included in the identification information data stream. In addition, the electronic mail provider transfers the transmission signal during a specific period.

Next, the transmission signal which is in conjunction with a first signal and a second signal is transmitted from the electronic mail provider 210 to the receiving terminal 230 through the communication network. The first signal can be a ring signal, a customer-premise-equipment alerting signal (CAS) or null signal. Similarly, the second signal can be a ring signal or null signal.

Next, the receiving terminal 230 receives the transmission signal, the first signal and the second signal.

Moreover, the transmission signal is then transformed back into

the identification information data stream of the electronic mail, and the identification information is shown on the display panel 240 of the receiving terminal 230. For example, a greeting message from yueho@pacbell.net with a title "Happy Y2K" transferred at 00:00AM on the 1st of Jan, 2000 is display on the display panel 240. Furthermore, besides displaying the image, text, picture and sound of the identification information, the display panel 240 also may output a warning message for indicating arrival of new electronic mails. The warning message can be of a type such as sound, ring, music, blink, text or symbol. Furthermore, all of the identification information can be saved, and showed as a visual message or audio message until the receiving terminal makes a request.

Obviously, the present invention may be regard as a combination of two methods. One method, corresponding to first three steps above, is that an electronic mail provider actively provides users the messages related with new electronic mails. The other one, corresponding to the steps exclusive of first three above, is that users can receive the messages related with the new electronic mail.

Besides, considering that users may be unable to read the identification information in time, the method further comprises a suspending step and a re-establishing step. The suspending step is to suspend the connection between the electronic mail provider and the receiving terminal if it is failed on connection establishment within a specific period. The re-establishing step is to re-establish the connection and transfer the transmission signal after waiting a standby period. Both of the specific and standby periods are adjustable.

Besides, the method of the present invention may further comprise a step of automatically transferring the identification information to the receiving terminal as soon as receiving a response from the receiving terminal. The method of the present invention further comprises a step
5 that users can get the electronic mail from the electronic mail provider through network after the users receive the identification information.

For example, in telephone communication system, when the EID receiving terminal on hook receives a phone from the electronic mail
10 provider (electronic identification is transferred), it can automatically become off hook. While, the electronic mail provider confirms the available connection according to a response from the EID receiving terminal, and thereafter transfers the identification information to the EID receiving terminal. However, if the available connection isn't
15 established within a specific period because the EID receiving terminal is off hook, the electronic mail provider may re-establish the connection after waiting a standby period. Besides, when the EID receiving terminal that has functions of call waiting and multi-talker is busy and receive a notification of coming identification information. The EID
20 receiving terminal would notify the user with image or sound , such as "you have a new mail" or beep sound. Thus , users can determine if they are going to receive the new mail or not immediately.

Meanwhile, there are some problems in the method for
25 transferring the related-mail information with the two-terminal phone connection. The problems include cost, advertisement disturbance, and so on. Thus, the filter device also can be built on the receiving terminal. Thus, the method of the present invention comprises a step

of filtering. The filtering step is for suspending the transformation of the transmission signal when the identification information is corresponding with some predetermined deletion conditions, or for permitting the transformation of the transmission signal when the identification information is corresponding with some predetermined permission conditions. Certainly, the filtering step can be set in either the electronic mail provider or the receiving terminal.

As shown in FIG. 2, the electronic mail provider 210 may work in coordination with the network service provider 220 to transform the identification information of the electronic mail into the transmission signal and to transfer the transmission signal to the receiving terminal 230. The transmission signal can include more information, such as the ISP's advertisements, or other electronic information such as news, stock price, weather, entertainment, business, living information, sport, astrology and traffic. Furthermore users can set to get some electronic messages at a specific period. For example, stock list at 10 o'clock every day. Nevertheless, the electronic mail provider 210 also can utilize the services provided by the network service provider 220, such as a telephone company. The services may include a caller identification (CID) service (shown in FIG. 3).

FIG. 3 shows a block diagram of a system 300 used by another embodiment of the present invention for displaying EID information. In the present embodiment, the electronic mail provider 210 adopts the format provided by the existing CID to transfer messages to the client. By setting the distinctive code, such as phone number, of electronic mail provider 210 in the receiving terminal, and modifying the control

circuit therein, such as micro-controller, micro-processor and programming software for modify control circuit, a message corresponding to the notification of new electronic mail arrival from the electronic mail provider 210 , such as "you have new email", can be
5 shown on the displaying panel 340. The procedure described above is simple. But subjecting to the service provided by the network service provider (such as telephone company), the offering information is relatively fewer.

10 FIG. 4 shows an example of sequentially transferring a CAS signal, an EID message in FSK format and two ring signals. The transferred FSK data stream includes a channel seizure message for notifying the receiving terminal that the EID message is coming after a mark signal containing a series of "1" bits. The mark message is used
15 to identify the head of a data message. The data message includes a string of EID data packet that is composed of 8 bits data, a start bit and a stop bit. The FSK format data stream also includes a checksum signal transferred after the data packet. The checksum message is used to ensure that the receiving terminal has received the data packet
20 correctly. That is, error detection is provided by the use of the checksum word.

Furthermore, the receiving terminal 230, 330(i.e. electronic mail identification receiving terminal) shown respectively in FIG. 2 and
25 3 may be an EID phone or an EID adjunct box (AJ-Box). The EID phone and the EID AJ-Box may be a conventional CID phone or a CID adjunct box, which comprising a modified control circuit such as microprocessor, micro controller or programming software for modify circuit.

provider after the receiving terminal receives the transmission signal. The electronic mail provider is required by the response to transfer the corresponding electronic mail to the receiving terminal. However, users also can read the identification information prior to get the
5 corresponding electronic mail that is from the electronic mail provider through a communication network.

Besides the introduced methods and systems above, the invention also provides a method for transferring identification
10 information of an electronic mail. The method can make sure whether users receive the identification information. As shown in FIG. 7, the method comprises the following steps. First, the electronic provider receives a new electronic mail (step 701). When the new electronic mail arrives, the electronic mail provider transfers the transmission signal to
15 a receiving terminal assigned by users (step 702). Next, when the electronic mail provider receives a response from the receiving terminal within a specific period (step 703), it may transfers identification information of the new electronic mail to the receiving terminal (step 704), otherwise suspends the connection (step 705). Certainly, the
20 method further comprises a re-establishing step. The re-establishing step is for re-establishing the connection between the electronic mail server and the receiving terminal after waiting a standby period. And then the electronic mail provider may transfer the transmission signal again. Furthermore, the method also comprises that users connect to
25 the electronic mail provider to get the new mails after they receive the transmission signal. Additionally, both the specific and standby periods are adjustable, and the response may only be a message resulting from the state variation of the receiving terminal (such as on

hook state switches to off hook state) without any specific format.

Accordingly, the system and method of the invention are to automatically transfer and display identification information of new electronic mail, to and on, a receiving terminal. The displaying can be
5 an audible message or a visible message for indicating the arrivals of new E-mails and enabling users checking the mails in time. Moreover, the invention further provides the functions for checking users options prior to transferring the identification information. Obviously, by using
10 the present invention, users can receive the new mails without actively starting computer and connecting network, thus raise efficiency and save all costs.

Although specific embodiment has been illustrated and
15 described, it will be obvious to those skilled in the art that various modifications may be made without departing from what is intended to be limited solely by the appended claims.